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BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

IN RE APPLICATION NO. 99-1

EXHIBIT ____ (BC-T)

SUMAS ENERGY 2 GENERATION
FACILITY

APPLICANT'S PREFILED DIRECT TESTIMONY

WITNESS # 6: BURT CLOTHIER

Q. Please introduce yourself to the Council.

A. My name is Burt Clothier. My business address is Robinson & Noble, Inc. 5320
Orchard Street West, Tacoma, Washington, 98467.

Q. What is the subject of your testimony?

A. My testimony will address three topics:

First, my background and experience.

Second, the water supply for the SE2 project.

Third, the protection of aquifer below the facility.

EXHIBIT ____ (BC-T) – REVISED 6/21/00
BURT CLOTHIER'S
PREFILED TESTIMONY - 1

[31742-0001/Clothier Revised.doc SL003721.474]

PERKINS COIE LLP
1201 Third Avenue, Suite 4800
Seattle, Washington 98101-3099
(206) 583-8888

Background

Q. What is your occupation and title?

A. I am the senior Associate Hydrogeologist at Robinson & Noble. Robinson & Noble is a consulting firm that specializes in groundwater and environmental geology. It was founded in 1947, and provides hydrogeologic services in the definition and development of groundwater resources throughout the Pacific Northwest.

Q. Please describe your background.

A. I have been at Robinson & Noble for ten years. During that time, my primary responsibilities have included project management, collection and interpretation of hydrogeologic data, field supervision of well drilling and preparation of technical reports. I am a Registered Professional Geologist in the State of Oregon (Washington does not, as yet, have a registration program for geologists) and a member of four national and international professional organizations: the Geological Society of America, the Association of Engineering Geologists, the National Ground Water Association, and the American Water Works Association. I received a Bachelors of Science degree in geology from the University of Puget Sound in Tacoma, Washington. A copy of my resume is provided as Exhibit ____ (BC-1).

Q. What is your role in connection with the SE2 project?

A. Robinson & Noble, together with hydrogeologists and engineers from David Evans & Associates and Dames & Moore, is providing hydrogeologic consulting services in connection with the water supply and water rights aspects of the Sumas Energy 2 (SE2) Generation Facility proposal. Our work has included well testing, regional

1 hydrogeologic studies, water rights analyses, and wellfield evaluations. I am the
2
3 Project Manager for Robinson & Noble on this matter.
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6 **Q. Has Robinson & Noble performed previous work regarding water supply issues**
7 **in Sumas, Washington?**
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10 **A.** Yes. National Energy Systems Company (NESCO) retained Robinson & Noble in
11 connection with the development of the Sumas Energy 1 (SE1) Co-generation Facility
12 Robinson & Noble was initially contracted in connection with the development of the
13 SE1 power-generation plant. We were the project hydrogeologists for the evaluation,
14 drilling and development of the City of Sumas' May Road Well Field beginning in
15 1990. My personal involvement began with the drilling of May Road Well #1 in 1992.
16 Since then, I have worked on the drilling and testing of May Road Well #3, the 7-day
17 test of the May Road Well Field, and the drilling and testing of Replacement Well #4
18 for the City of Sumas' municipal wellfield.
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30 **Q. Who else is part of the Robinson & Noble team working on the SE2 project?**
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32 **A.** F. Michael Krautkramer, a Principal and Vice-President of Robinson & Noble has been
33 involved in our consulting for the SE2 project since its inception and has worked on
34 the Sumas-area projects beginning in 1990. A copy of his resume is attached as
35 Exhibit ____ (BC-2) to this testimony.
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Water Supply

Q. How much water with the SE2 facility use during normal operation?

A. According to the current estimates of the project engineers, the SE2 facility will require a maximum of ~~1,053~~ 1025 acre-feet of water per year, and a maximum peak instantaneous demand of ~~849~~ approximately 760 gallons per minute (gpm). During normal operations, the SE2 plant will require an annual average ~~continuous~~ flow of approximately ~~653~~ 635 gpm.

Q. Where will SE2 obtain this water?

A. The City of Sumas will provide all water necessary for this project. The City has issued a Certificate of Water Availability to SE2 indicating the City's ability and willingness to provide sufficient water to meet the project needs. A copy of the Certificate is provided as Exhibit ____ (BC-3).

Q. Does the City of Sumas possess sufficient water rights to supply water to the SE2 facility?

A. Yes. The City of Sumas has two primary water sources, the May Road Well Field, and the Sumas Municipal Well Field. The City possesses water rights associated with each well field. These are discussed in detail in Section 3.3 of the Application. In total, the City's water rights allow for the withdrawal of 1,660 gpm and 1,825 acre-feet per year at the May Road Well Field (including surface water mitigation) and 2,250 gpm and 1,919 acre-feet per year from the Sumas Municipal Well Field. Water from the May Road Well Field is industrial grade, non-potable. Water from the Municipal Well Field is potable.

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3 The City of Sumas has prepared a Comprehensive Water System Plan. In it, the City
4 reported that the current average annual usage is 1,987 acre-feet per year, and the City
5 estimated that planned growth in the City's service area might increase water demand
6 from the cities of Sumas and Nooksack, the Sumas Rural Water Association and the
7 Nooksack Valley Water Association by as much as 26% over the next twenty years.
8 Based upon the analysis performed in connection with the Comprehensive Water
9 System Plan, the City concluded that it would have sufficient water to provide the
10 1,053 acre-feet per year needed by the SE2 facility, taking into account expected
11 increases in water usage.
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23 **Q. You've testified that the City can provide water to SE2 and still meet its growth**
24 **needs for 20 years. What will happen after 20 years?**

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26 A. Several things could occur. It may turn out that the growth in water demand will
27 prove to be less than anticipated and no additional rights will be needed. If, however,
28 more water is needed, the City may apply for additional water rights or acquire them
29 via transfer. By then, the City may also have succeeded in its efforts to purchase
30 additional industrial grade water from the City of Abbotsford, B.C.
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39 **Q. If the City pumps water from the Municipal Well Field and the May Road Well**
40 **Field, will any other wells in the vicinity be adversely affected?**

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42 A. No. In the course of our work for both the City of Sumas and for SE2 over the past
43 eight years, we conducted several pump tests on the City's wells. These tests provide
44 us with data necessary to define the hydrogeologic characteristics of the source
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1 aquifer. Based on these characteristics, we were able to calculate the expected impacts
2 related to the pumping of the City's wells. Using observation wells, we defined
3 distance versus drawdown relationships that allow for the prediction of interference
4 effects at distances from the pumping wells. The results of these predictions indicate
5 that, for the identified distances to neighboring wells, no adverse impacts are likely to
6 occur. There is some potential that wells near to either or both of the wellfields will
7 have slightly lower water levels as a result of the City's water production. However,
8 these impacts are not expected to be large enough to impair the ability of neighboring
9 wells to fully exercise their water rights.
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20 I should explain that there is a significant difference between an impact on a well and
21 an impairment of a neighboring water right. Where two water sources are in the same
22 aquifer system, and in reasonably close proximity (depending upon the geologic
23 characteristics of the system), an impact on one source due to the pumping of the
24 other is not uncommon. Whether or not the impact is significant enough to prevent
25 the full exercise of a neighboring water right is another question. Although it is
26 possible that the City withdrawing water to the full extent of its water rights could
27 result in an impact, I do not believe it will result in an impairment of neighboring water
28 rights.
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40 **Q. The Draft EIS pointed out that one irrigation well and five domestic wells might**
41 **be affected by the City's production of its full water right allocations. Do you**
42 **agree that these wells might be affected?**
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1 A. I agree that it is theoretically possible that these wells could be affected. As I just
2 explained, however, there is a difference between having an effect on a well and
3 impairing a water right. The DEIS identifies the theoretical radius of influence for
4 each well field based on available information. This is a planning tool that identifies
5 the greatest area where impacts could occur, not an area where impacts will occur.
6 Our calculations indicate that any such impacts will not result in the impairment of
7 neighboring water rights.
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16 **Q. If, in fact, these wells are adversely affected, how will this problem be mitigated.**

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18 A. Usually, the magnitude of impacts is small enough that simply lowering the pump
19 intake in the impacted well is sufficient to solve the problem. If that were not possible,
20 a new, more efficient well could be drilled. The costs associated with such efforts are
21 relatively small because most domestic needs are easily met with a small diameter well
22 placed to a relatively shallow depth.
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31 **Aquifer Protection**

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33 **Q. Can you generally describe the aquifer in the area of the SE2 facility?**

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35 A. The U.S. Geological Survey (USGS) defines the Sumas Aquifer as stratified sand and
36 gravel outwash deposits with minor clay lenses. The aquifer is defined as regionally
37 significant, both in extent and productivity. In the vicinity of the proposed SE2
38 location, the Sumas Aquifer exists 40 to 60 feet below ground surface and is overlain
39 by fine-grained lacustrine or alluvial deposits. Water in the aquifer generally flows
40 from the northwest down to the area under the Sumas River Valley, where flow
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1 directions turn to the east and northeast. Our investigations concur with these regional
2 interpretations.
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6 **Q. Some opponents of the project have claimed that accidental spills of diesel fuel or**
7 **other chemicals at the facility could contaminate public water supplies in the**
8 **aquifer below the site. Are their claims justified?**
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10 **A.** No. Other witnesses can speak to the containment areas and spill prevention measures
11 at the facility. As a hydrogeologist, I have looked at whether an uncontained release,
12 if it occurred, would be likely to contaminate the aquifer. I do not believe it would.
13 The Sumas Energy 2 facility will be located above sediments dominated by fine-
14 grained floodplain silts and clay. The USGS notes that this material can be up to 15
15 feet thick. Beneath these floodplain silts are deposits of sand, silt and clay from the
16 last glacial period. The fine-grained nature of these valley deposits greatly lessens the
17 vulnerability to surface contamination of any water-bearing units below them. Local
18 water supplies served by the City of Sumas come from a well field about 3,000 feet to
19 the northwest of the SE2 site. The water produced from the wellfield is safe from any
20 potential contamination at the SE2 site due to the presence of the fine-grained deposits
21 and because the wellfield is upgradient from the SE2 site.
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END OF TESTIMONY

I declare under penalty of perjury that the above testimony is true and correct to the best of my knowledge.

DATED: April _____, 2000.

By _____
Burt Clothier